viruses are ongoing.

**Conclusion:** Neutralization susceptibility of AE-Env is regulated by the N-linked glycosylation sites, N186 and N197, in V2 and C2 regions cooperated with amino acid residue 185 in V2 region of gp120.

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## In search for a new anti-HIV-1 drug through inhibition of CA-CypA interaction

C. Verathamjamras[1,*], Y.-S. Tian[2], T. Yasunaga[3], T. Takagi[2], N. Kawashita[2], M. Kameoka[1]

[1] *Thailand-Japan Research Collaboration Center on Emerging and Re-emerging Infections, Nonthaburi, Thailand*
[2] *Graduate School of Pharmaceutical Sciences, Suita, Osaka, Japan*
[3] *Genome Information Research Center, Research Institute for Microbial Disease, Suita, Osaka, Japan*

**Background:** Currently available antiretroviral drugs are classified into 4 classes including reverse transcriptase inhibitors, protease inhibitors, integrase inhibitors and entry/fusion inhibitors. Highly active antiretroviral therapy (HAART), using a combination of three or more antiretroviral drugs, can manage HIV-1 replication for many years; however, the virus tries to survive under antiretroviral therapy by mutate itself to become a drug-resistant variant. Therefore, the development of new classes of anti-HIV-1 drugs with different inhibition mechanisms is required. The interaction between HIV-1 capsid protein (CA) and human cyclophilin A (CypA) is crucial for HIV-1 life cycle. Although the role of CypA in HIV-1 life cycle remains unclear, CA-CypA interaction is an interesting target for the development of new anti-HIV-1 agents.

**Methods:** Seventy-seven compounds which could bind to CA *in silico* were tested for its activity against HIV-1 replication. Each compound was tested *in vitro* at a fix concentration using a vesicular stomatitis virus G protein (VSVG)-pseudotyped, luciferase reporter HIV-1 in the 1st round screening. The compounds that showed potent HIV-1 inhibition were evaluated for dose-dependent effect and cytotoxicity effect in the 2ndround screening.

**Results:** Eleven compounds showed a potent inhibitory effect on HIV-1 replication in the 1st round screening. Five compounds were considered to be safe and potent HIV-1 inhibitors in the 2nd round screening.

**Conclusion:** Although most compounds had little or no effect on HIV-1 replication, five compounds showed a potent inhibitory activity on viral replication through our screening. Further studies on their inhibitory mechanisms are underway.

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## HCV co-infection may promote the subclinical left ventricular dysfunction development in HIV-infected subjects

M. Dabrowska, T. Mikula, A. Wiercinska-Drapalo*

*Warsaw Medical University, Warsaw, Poland*

**Background:** Chronic HCV infection may be linked with possible myocarditis and cardiomyopathy development. The pathophysiology of cardiac injury in hepatitis C is still unknown, however it seems that inflammation and apoptosis may play a crucial role in this progressive process. The brain natriuretic peptide (BNP) is a hormone secreted predominantly from the cardiac ventricles on response to increased wall stress, wall distension and stretching or neurohormonal activation. Presently, BNP is commonly used as a sensitive biomarker of subclinical/clinical left ventricular (LV) dysfunction.

The present study aimed to compare BNP serum levels in HIV-infected and HCV/HIV co-infected subjects with or without ARV therapy.

**Methods:** Eighty HIV-infected patients (65 males, 15 females, mean age 40 years; 29 with HCV co-infection, 48 on cART) were included to the cross-sectional study. Compensated liver cirrhosis was diagnosed clinically in 9 (11%) studied subjects, all of them had HCV/HIV co-infection. One HCV/HIV co-infected subject had confirmed right ventricular dysfunction diagnosis. The BNP serum levels were evaluated by ELISA. A BNP cut-off level for heart failure diagnosis was 100 pg/mL as in immunocompetent population. In statistical analyses U Mann-Whitney, Spearman correlation and chi2 tests were used. $P < 0.05$ was considered statistically significant.

**Results:** Seventy eight (97.5%) studied subjects had BNP concentration above 42 fmol/L (100 pg/mL), 7 patients (8.7%) had concentration above 168 fmol/L (400 pg/mL) which is associated with a worse outcome. There was no difference in mean BNP serum levels in ARV-treated and untreated patients ($106.2 \pm 94.5$ vs $116.4 \pm 87.9$ fmol/L; $p = 0.15$). However, the mean BNP serum level was significantly higher in HCV/HIV co-infected in comparison to HIV mono-infected patients ($160.0 \pm 130.9$ vs $81.9 \pm 37.2$ fmol/L; $p < 0.0001$). There was no relationship between BNP serum levels and HIV viral load, CD4 cell count, gender and ABC or PIs use.

**Conclusion:** HCV co-infection may significantly enhance the risk of the subclinical LV dysfunction in HIV-infected subjects. The ARV therapy probably does not reduce progressive myocardial damage in this group of patients. We suggest regular BNP screening in every HCV/HIV co-infected patient. Every LV dysfunction suspicion should be confirmed by echocardiographic.

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